

Nutritional properties in cooking oils

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It is very important to consider both saponifiable and unsaponifiable fractions of cooking oils in order to assess the nutritional qualities. Even though consumers pay more attention to the saponifiable (triglyceride) fraction of cooking oils, the unsaponifiable fraction of unrefined cooking oils contain phenolic antioxidants such as phenolic acids and flavonoids. These are responsible for several health benefits such as reduction of coronary heart disease and malignancy.

In the present study saponifiable and unsaponifiable fractions of cooking oils available in the Sri Lankan market were analyzed. The aim of this study was to check the authenticity of cooking oils by comparison of the fatty acid compositions with the reported values, to evaluate the total phenol content and to estimate the antioxidant activity of the phenolic fraction isolated from cooking oils.

Seventeen brands of cooking oils including coconut oil prepared by boiling coconut milk (Brand 1), coconut oil collected from mills (Brand 2), loose form of coconut oil in the market (Brand 3), refined coconut oil (Brand 4), vegetable oil (Brand 5,6,7,8), soya bean oil (Brand 9,10), sunflower oil (Brand 11,12), corn oil (Brand 13,14), sesame oil (brand 15), olive oil (Brand 16) and palm kernel oil (Brand 17) were tested. Fatty acid compositions of the oils were determined by gas liquid chromatography of fatty acid methyl esters. Total phenol content was determined by Folin-Denis method and antioxidant activity was evaluated by monitoring the inhibition of oxidation of linoleic acid system.

Fatty acid compositions in the cooking oils except those of brand 3 agreed with the reported compositions for each type of oil. The brand 3 contained a higher percentage of unsaturated fatty acids such as oleic and linoleic acids compared to the fatty acid composition of authentic coconut oil, indicating that this oil is adulterated with, most probably palm kernel oil. Phenol contents of cooking oils were 443 ± 15 (Brand 1), 188 ± 5 (Brand 2,4), 11 ± 5 (Brand 5,6,7,8,9,10,11,12,13,14 and 16) and 311 ± 5 (Brand 15). The total phenol content correlates with the antioxidant activity of linoleic acid system, indicating that phenolic compounds in cooking oils have desirable antioxidant properties. Because of the high composition (>80%) of medium chain saturated fatty acids in triglycerides which are not responsible for generating cholesterol in the body and presence of higher content of phenolic antioxidants compared to other cooking oils, unrefined and unadulterated coconut oil seem to be an excellent choice as a cooking oil.

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